

# Work Order ID 62056

Wednesday, September 15, 2010 1:29:04 PM



Page 1

Item ID: D3624-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Bubble Window

Start Date: 9/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

*M*

Date: 10-9-15

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3624	Rev D								

100

0.00



HAND FINISHING THERMOFORMING

Thermoform

Memo

0.00

Thermoforming Machine

Cut Blanks to 30" by 48"

*30/09/20*

110

0.00



THERMOFORMING MACHINE

Thermoform

Memo

0.00

Thermoforming Machine

Thermoform as per Dwg. D3624 and Folio FTA 004 ☐ Dwg. Rev. *D*  
☐ Folio Rev. *D*

*10/09/20*

120

0.00



QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

Check Surface finish for undesired marks, voids, dimples etc. Check depth of bubble to ensure conformity to drawing tolerances.

*10/09/20*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

1. The first step is to identify the problem. In this case, the problem is that the company is not meeting its sales targets.

2. The second step is to analyze the problem. This involves identifying the causes of the problem and determining the impact of the problem on the company.

3. The third step is to develop a solution. This involves identifying the actions that need to be taken to address the problem and determining the resources that will be required.

4. The fourth step is to implement the solution. This involves putting the solution into action and monitoring the progress of the implementation.

5. The fifth step is to evaluate the results. This involves assessing the effectiveness of the solution and determining whether the problem has been resolved.

Page 2

**Accept**

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

2. Once the problem is identified, the next step is to define the objectives of the project. These objectives should be clear, measurable, and achievable.

3. The third step is to develop a plan of action. This involves determining the steps that need to be taken to achieve the objectives and assigning responsibilities to team members.

4. The fourth step is to implement the plan. This involves carrying out the tasks and activities that have been planned.

5. The final step is to evaluate the results of the project. This involves comparing the actual outcomes with the objectives and identifying any areas for improvement.

**Setup Start**

[REDACTED]

**Stop**

[illegible]**Cust Item ID:**[illegible]

**Customer:**

**Reference:**

Run Start



**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Stop**

**Abstract**

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

### Operation Description

### Set Up/ Run Hours

Tool ID	Tool #	Plan Code
---------	--------	-----------

Accept Qty	Reject Qty	Reject Number	Insp. Stamp
---------------	---------------	------------------	----------------

130

0.00



## HAND FINISHING THERMOFORMING

Thermoform

## Memo

0.00

### Thermoforming Machine

1) Trim to Finished Dimensions      □2) Buff out any light scratches or blemishes□3) Etch in part number and batch number

140

0.00

[illegible]

QC2- Inspect parts off machine FAI/FAIB

QC

## Memo

0.00

## Quality Control

150

0.00

**Abstract**

QC5- Inspect part completeness to step on W/O

OC

## Memo

0.00

## Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**Work Order ID 62056**

Wednesday, September 15, 2010 1:29:04 PM



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Item ID: D3624-2

Accept



Setup Start



Revision ID:

Stop



Item Name: Bubble Window

Start Date: 9/15/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/22/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160



Packaging

Identify as per dwg & Stock Location 176

0.00

Memo

0.00

Packaging

2010/9/24 (1)

170



QC

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

Quality Control

10/09/27 (1)  
mf  
10-9-24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

Wednesday, September 15, 2010 1:29:08 PM

Page 1

Work Order ID: 62056



Parent Item: D3624-2



Parent Item Name: Bubble Window

Start Date: 9/15/2010

Required Date: 9/22/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP A Thermoform in house 6/27/2007 DL  
IPP B. Revised due to corrupt operating Program. 7/23/2007 DL  
IPP C. Dwg. Rev. change 7/30/2007  
IPP D. Dwg. Rev. Updated 4/25/2008 verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MACRYLICS.177		Purchased	No				sf	249.8722	10	10.00500			
0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SHEET													

Location

Loc Qty

Loc Code

therm

249.8722

107291

24

111315

54

115234

171.8722

1 BB 10/09/20

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DART AEROSPACE LTD		Work Order:	42054
Description: Bubble Window (A119)		Part Number:	D3624-2
Inspection Dwg: D3624	Rev: D	Page 1 of 1	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

#### THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Bubble Depth within tolerance	✓			
Shape Definition	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

Measured by: DL

Date: 10/09/20

#### TRIMMING SECTION

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
11.0	+/-0.25	11.06"	✓			
3.0	0.095 Min	0.106"	✓			
8.5	0.058 Min	0.0774	✓			
3.0	0.060 Min	0.098"	✓			
8.5	0.042 Min	0.068"	✓			
2.5	0.030 Min	0.057"	✓			
92°	+/-0.2° Min	92°	✓			
90°	+/-0.2° Min	90°	✓			
0.85	Min	0.93"	✓			
0.70	Min	0.78"	✓			

Measured by: DL

Date: 10/09/21

Audited by: S

Date: 10/09/21

Prototype Approval: \_\_\_\_\_

Date: \_\_\_\_\_

Rev	Date	Change	Revised by	Approved
A	08.11.28	New Issue	KJ/DL	<u>[Signature]</u>

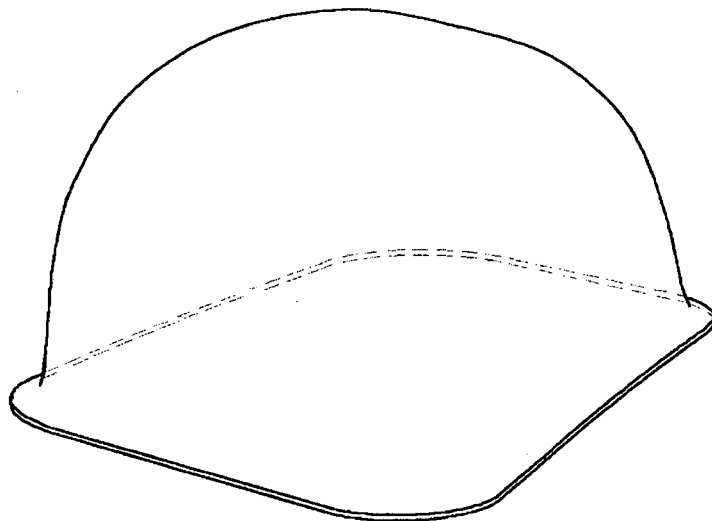
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**D3624-2 BUBBLE WINDOW**

**NOTES:**

- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C  
OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425  
0.177 TO 0.188 THICK (STOCK, REF DART SPEC M-ACRYLIC-S)
  - 2) FINISH: NONE
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
  - 6) IDENTIFICATION: ENGRAVE P/N & B/N ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005".
  - 7) WEIGHT: 2.95 lbs
  - 8) FORM PER DT8953 AND QSI 022
- FORMING PROCESS: (a) DRAPE OVER DT8953 MOLD  
(b) HEAT TO 290°F  
(c) VACUUM FORM TO SPECIFIED HEIGHT  
(d) LET COOL TO AT LEAST 100°F BEFORE HANDLING  
(e) TRIM FLANGE USING DT8954

SHOP  
REPL  
ENG  
UNCONTROLLED  
SUBJECT TO AMEND  
WITHOUT  
WORK OF  
NO. 62054  
B/10-9-25

RELEASED  
18-23-2018

D	REDRAW, REFORMAT, RMV SHAPE TOOL, ADD SEC B-B (2C8) & C-C (2C3), ADD FLANGE & WALL & WALL ANGLE DIMS, UPDATE MATL SPEC (1B8)	CP	08.03.12
C	ADD TOOL TO CONTROL BUBBLE SHAPE	CP	07.06.27
B	11.0" DEPTH WAS 12.0"	CP	07.05.24
A	NEW ISSUE	CP	07.06.27
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
DE APPR.			
DATE	08.03.12		

<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D3624	REV. D
TITLE BUBBLE WINDOW (A119)	SHEET 1 OF 2
SCALE NTS	

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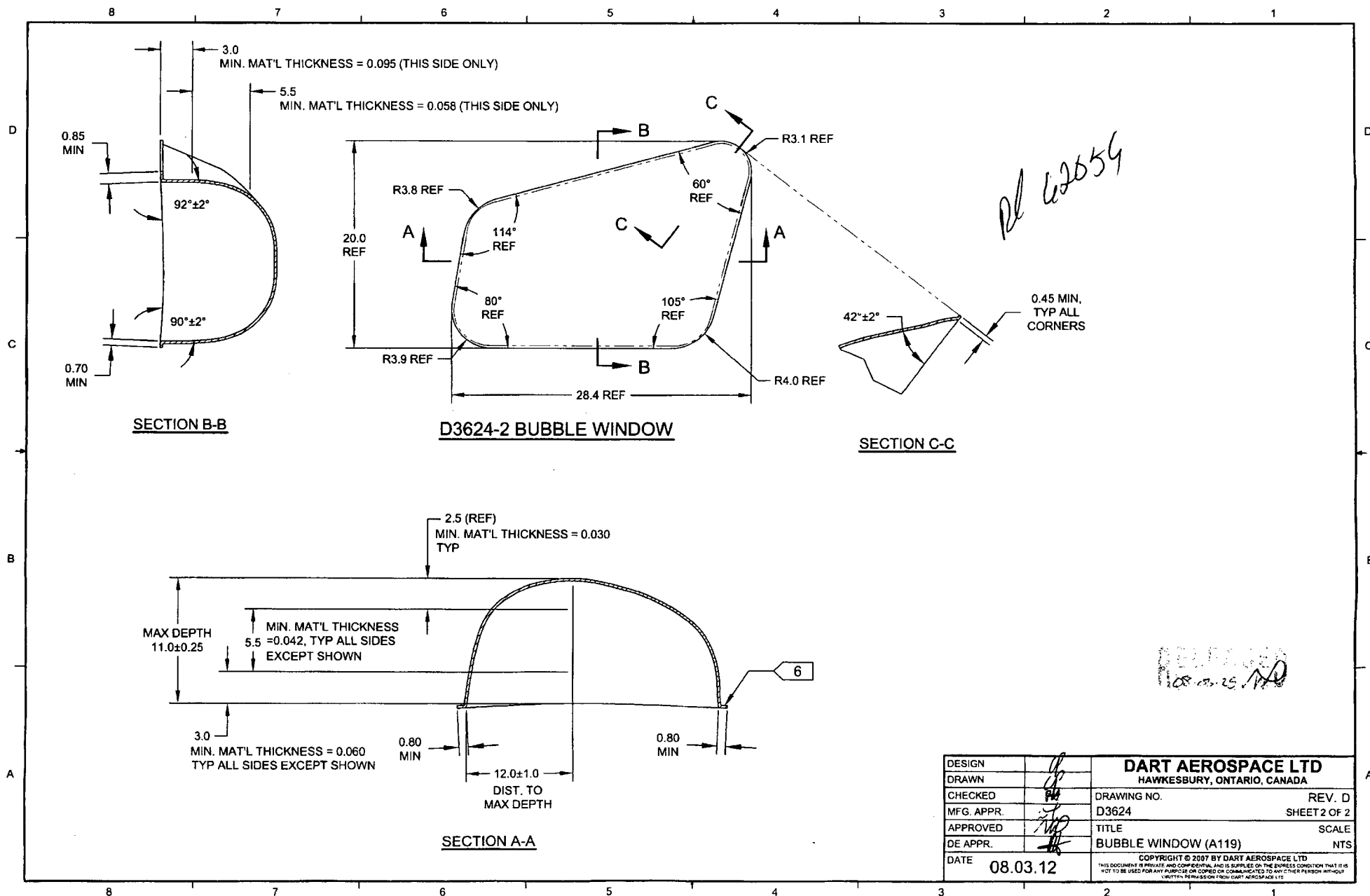
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DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D3624	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		BUBBLE WINDOW (A119)	NTS
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